CLAIMS

What is claimed is:

1. An electromagnet assembly for an electromagnetic apparatus comprising:

a ring member comprising a tubular spool with a pair of annular flanges projecting radially from said spool;

a coil bobbin comprising said ring member and an electrical wire, said electrical wire wound around said spool between said flanges;

a ring case comprising an annular groove, which has an open edge, said coil bobbin disposed in said annular groove;

an opening formed through said ring case adjacent to a closed end surface of said ring case;

a connector disposed on said ring case adjacent to said closed end surface, such that said connector covers said opening; and

a first end and a second end of said electrical wire, and a first lead wire and a second lead wire of an electric circuit connected to said first and said second ends, respectively in said connector,

wherein a first projection portion formed on said connector is inserted into said opening and is fixed adhesively to an end surface of said ring member.

2. The electromagnet assembly of claim 1, wherein said first projection portion of said connector is fitted pressedly into said opening.

3. The electromagnet assembly of claim 1, wherein a hook portion formed around a tip portion of said first projection portion of said connector engages a rim of said opening.

4. The electromagnet assembly of claim 1, wherein a side surface of said first projecton portion formed on said connector is fixed adhesively to an annular wall of said opening.

5. The electromagnet assembly of claim 1, wherein a second projection portion formed around said first projection portion of said connector engages a concave portion formed around said annular wall of said opening, and is fixed adhesively to said concave portion.

6. The electromagnet assembly of claim 1, wherein a concave portion formed around said first projection portion of said connector engages a second projection portion formed around said annular wall of said opening, and is fixed adhesively to said second projection portion.

7. The electromagnet assembly of claim 1, wherein a second projection portion formed around said first projection portion of said connector engages a concave portion formed around said annular wall of said opening, and is fitted pressedly into said concave portion.

8. The electromagnet assembly of claim 1, wherein a second projection portion formed around said annular wall of said opening engages a concave portion formed around said first projection portion of said connector, and is fitted pressedly into said concave portion.

9. An electromagnet assembly for an electromagnetic apparatus comprising:

a ring member comprising a tubular spool with a pair of annular flanges projecting radially from said spool;

a coil bobbin comprising said ring member and an electrical wire, said electrical wire wound around said spool between said flanges;

a ring case comprising an annular groove, which has an open edge, said coil bobbin disposed in said annular groove;

an opening formed through said ring case adjacent to a closed end surface of said ring case;

a connector disposed on said ring case adjacent to said closed end surface, such that said connector covers said opening; and

a first end and a second end of said electrical wire, and a first lead wire and a second lead wire of an electric circuit connected to said first and said second ends, respectively in said connector,

wherein a first projection portion formed on an end surface of said ring member of said coil bobbin is inserted into said opening, and is fixed adhesively to said connector.

10. The electromagnet assembly of claim 9, wherein said first projection portion of said coil bobbin is fitted pressedly into said opening.

11. The electromagnet assembly of claim 9, wherein a side surface of said first projection portion of said coil bobbin is fixed adhesively to an annular wall of said opening.

12. The electromagnet assembly of claim 9, wherein a second projection portion formed on said connector engages a concave portion formed at said first projection portion of said coil bobbin.

13. The electromagnet assembly of claim 9, wherein a second projection portion formed on a tip portion of said first projection portion of said coil bobbin engages a concave portion formed on said connector.

14. The electromagnet assembly of claim 9, wherein a tip portion of said first projection portion of said coil bobbin engages a concave portion formed on said connector.

15. The electromagnet assembly of claim 9, wherein a third projection portion formed around said first projection portion of said coil bobbin engages a concave portion formed around said annular wall of said opening, and is fixed adhesively to said concave portion.

16. The electromagnet assembly of claim 9, a concave portion formed around said first projection portion of said coil bobbin engages a third projection portion formed around said annular wall of said opening, and is fixed adhesively to said concave portion.

17. The electromagnet assembly of claim 9, a hook portion formed around a tip portion of said first projection portion of said coil bobbin is fitted pressedly into said opening, and engages a rim of said opening.

18. The electromagnet assembly of claim 9, a third projection portion formed around said first projection portion of said coil bobbin is fitted pressedly into said opening.

19. The electromagnet assembly of claim 9, a third projection portion formed around said annular wall of said opening is fitted pressedly into a concave portion formed around said first projection portion of said coil bobbin.